



Rec. zool. Surv. India : 111(Part-1) : 11-16, 2011

## REDESCRIPTION AND NEW DISTRIBUTIONAL RECORDS OF *OREUMENOIDES EDWARDSII* (DE SAUSSURE) (HYMENOPTERA : VESPIDAE; EUMENINAE) FROM INDIA

P. GIRISH KUMAR

Zoological Survey of India, M-Block, New Alipore, Kolkata, West Bengal-700 053, India

E-mail : kpgiris@gmail.com

### INTRODUCTION

Though relatively more taxonomic works on the potter wasps have been done on the fauna of Palaearctic and Nearctic regions, our information on the fauna of Indian subcontinent is very scanty and fragmentary. Among the species reported from India many need detailed taxonomic revision and redescription. One such species is *Oreumenoides edwardsii* (de Saussure), first described by de Saussure in 1852 as *Eumenes edwardsii* from Bombay. The species was described on the basis of a female (Habite: "Les Indes Orientales; le Bombay"). Original description was very short which is inadequate for the identification at species level. Subsequently Bingham (1897) provided a redescription of it which is also very short and with some errors in description such as : (1). Median segment (= Propodeum) smooth, slightly pubescent (Actually, dorsal side of propodeum closely and densely punctate with small silvery white pubescence and in between moderately large silvery white pubescence and lateral sides of propodeum smooth, almost bare except at lower side with minute pubescence); (2). Clypeus about twice as long as broad (Actually, the minimum width of clypeus is 0.86x its length medially); (3). The description of colour is also not provided in detail.

In 1961 Soika erected a new genus *Oreumenoides* based on *Eumenes edwardsii* as the type. The other diagnostic characters of the genus are : male antennal apex minute, not hooked apically; petiole more than 1.25x the length of mesosoma; second gastral tergum without lamella separated by preapical thickening; pronotum with pretegular carina. This Oriental genus is represented only by the type species *Oreumenoides edwardsii* (de Saussure) till date.

*O. edwardsii* is so far known from Mumbai (in Maharashtra) (de Saussure, 1852; Bingham, 1897), Dehradun (in Uttarakhand) (Gupta, 1995), Malampuzha (in Kerala) and Karad (in Maharashtra) (Gusenleitner, 2006), North West Province (in Pakistan), Burma (= Myanmar) and Tenasserim (in Myanmar) (Bingham, 1897), Sikkim; Satara district, Bombay Presidency; Calcutta; Kumdhik, Nepal Terai; Pusa; Gorakhpur; Trichinopoly (= Thiruchirapally in Tamil Nadu) (Dover & Rao, 1922) and from Thailand (Zipcodezoo.com Webpage). In the present paper, this species is redescribed and newly recorded from the Indian states Delhi, Jharkhand, Karnataka, Madhya Pradesh and Rajasthan and the Union territory Pondicherry.

### MATERIAL AND METHODS

This study is based on a number of unidentified specimens present in the Hymenoptera Section of Zoological Survey of India, Kolkata (NZSI). All the specimens were set-pinned and dried. Male genitalia were dissected from one specimen collected from Namkum, Ranchi. Genitalia were dissected, treated with hot KOH, washed, dehydrated through grades of alcohol and mounted on card. The specimens were studied under a stereozoom microscope (Wild Heerbrugg made in Switzerland) and drawings were made using the drawing tube of microscope.

All the studied specimens were properly registered and kept at the 'National Zoological Collections' of the Hymenoptera Section of the Zoological Survey of India, Kolkata (NZSI).

The following abbreviations are used in the text: F = Female; M = Male; MP = Museum National d'Histoire Naturelle, Paris; NZSI = 'National Zoological Collections' of the Hymenoptera Section, Zoological Survey of India,

Kolkata; OOL = Ocellocular length; POL = Postocellar length.

***Oreumenoides edwardsii* (de Saussure)**

(Figs. 1-21 & Plate I)

1852. *Eumenes edwardsii* de Saussure, *Mon. Guep. Sol.* P. 60, Female, Syntype, Type loc. Les Indes-Orientales, Bombay (MP). Additional citations: Smith, 1857, *Cat. Hym. Brit. Mus.*, V, p. 22; Bingham, 1897, *Fauna of Brit. India, Hym.*, 1 : 344, Female, Male, des., distr., fig., syn.; Dutt, 1912, *Mem. Dept. Agr. India Ent. Ser.*, 4 : 239, nest; Dover & Rao, 1922, *J. Asia. Soc. Ben.*, N. S. xviii : 238, distr.; Gupta, 1995, *Him. Eco. Series, Hym.*, zool. Surv. India, 83, distr.

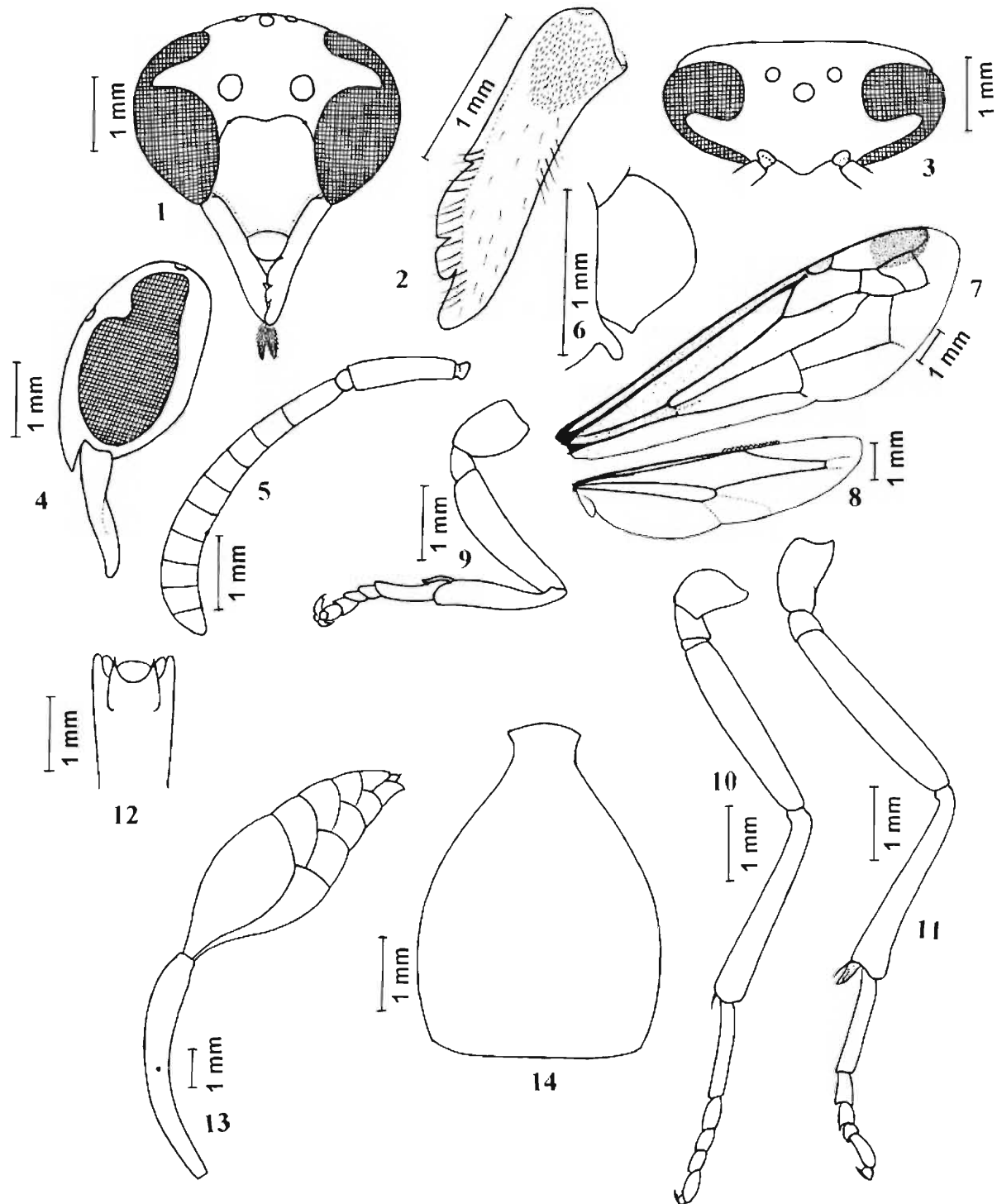
1961. *Oreumenoides edwardsii* (de Saussure): Giordani Soika, *Verh. XI Int., Kongr. Entomol. Wien.* 1 : 245, erected new genus *Oreumenoides* with type species *Eumenes edwardsii* de Saussure by original designation. Additional citation: Gusenleitner, 2006, *Linzer boil. Beitr.*, 38(1) : 694, distr.

**Redescription : Female:** Body length 14-16 mm; forewing length 11 mm. Body ferruginous red with yellow and black markings. Yellow markings as follows: at the clypeus, a triangular mark on interantennal space, inner margin of lower eye extends upto ocular sinus, a narrow line on outer margin of eye (rarely only a spot dorsally), a spot on ventral side of antennal attachment, a short line on middle of the pronotum (rarely the line extends to sides), a spot on tegula apically, parategula (rarely brownish yellow), lower half of metanotum (rarely yellowish brown), a small spot on antero-lateral side of propodeum (rarely absent), a small spot on postero-lateral corner of propodeum, propodeal valvula (rarely yellowish brown), a streak on outer side of tibiae and basitarsi (rarely absent in mid and hind tibiae and mid and hind basitarsi), a yellow mark on outer side of fore, mid and hind femora (rarely absent), a streak on each side just after middle of petiole, two subapical spots and two spots on postero-lateral corner on the same above, two lateral oval spots basally and a broad band apically on second gastral tergite, two spots postero-laterally on third gastral tergite (sometimes fourth also), a narrow band on second gastral sternite apically, a broad band on third and fourth sternite apically (sometimes fifth and sixth also). Black markings are as follows : frons except inner ocular sinus, vertex, temple except ocular margin of eye, occiput, mesoscutum except an M-shaped ferruginous brown marking, apical margin of scutellum, basal half of metanotum (sometimes reduced), axillary fossa, suture between metanotum and propodeum, median groove of propodeum, mesepimeron largely, ventral side of mesosoma, base and middle of

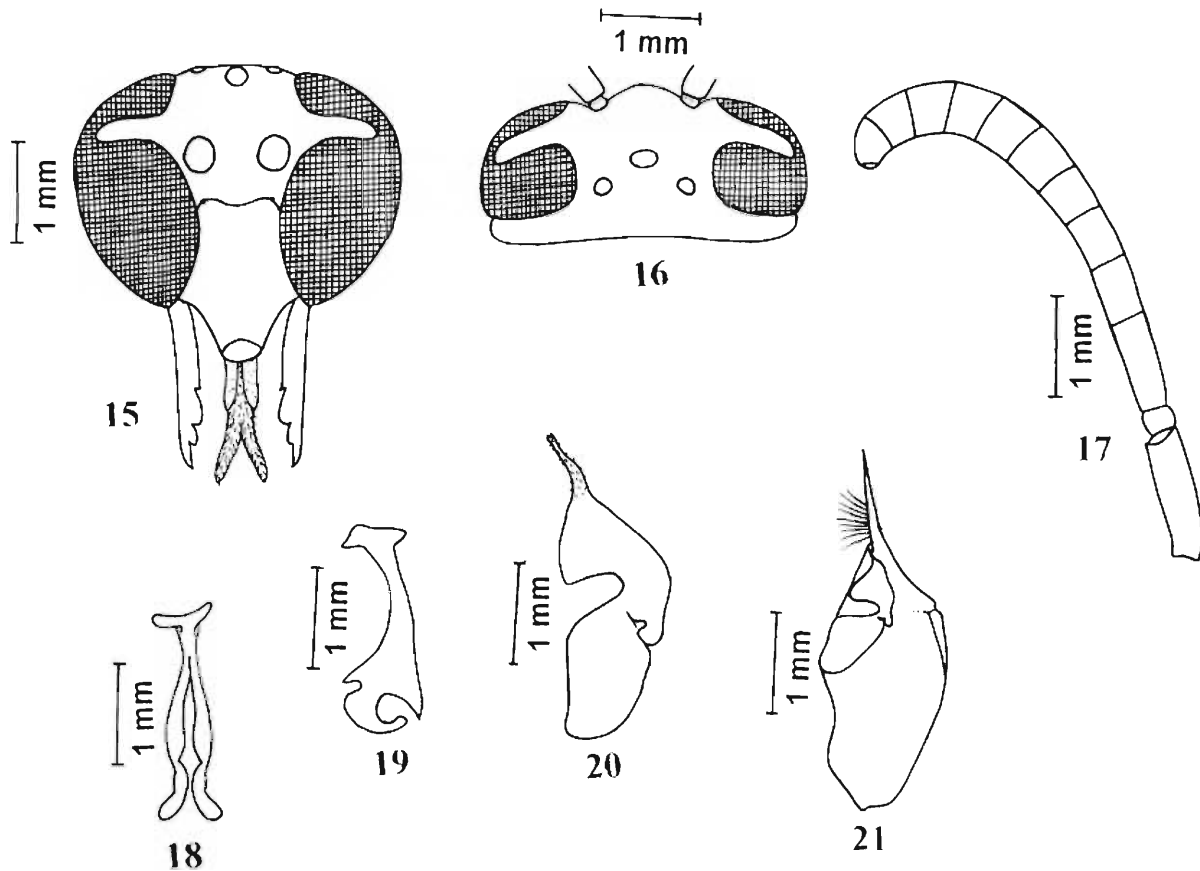
petiole above, middle of second gastral tergite (sometimes faint medially, appears to be blackish brown), a broad longitudinal band from base upto middle of second gastral sternite, two lateral spots on second gastral sternite subapically (sometimes faint, appears to be blackish brown). Forewing (Fig. 7) almost hyaline with some brown infumations anteriorly, a distinct brown infumation on radial cell at distal half; hindwing hyaline. Body covered with minute silvery white pubescence, some moderately large silvery white pubescence in between minute pubescence on frons, vertex, scutellum, metanotum, dorsal side of propodeum and scattered hairs on gastral segments.

**Head :** Width in front view (Fig. 1) 1.29x as long as distance between front ocellus and clypeal margin medially; width in dorsal view (Fig. 3) 6.7x distance between front ocellus and posterior occipital margin, almost equal to (0.98x) mesosoma along tegula; clypeus convex, minimum width 0.86x its length medially, apex emarginate with two lateral triangular tooth-like projections, almost smooth, upper margin emarginate; mandible (Fig. 2) smooth, with a line of large hairs on inner margin, scattered moderately large hairs on dorsal surface with few scattered large hairs outwards, very small closely set hairs basally; supraclypeal area, interantennal space except anterior portion, inner orbit, ocular sinus, vertex except at middle, temple and occiput almost smooth; frons, anterior portion of interantennal space, vertex at middle near to ocellar triangle with moderately large punctures, interspaces mostly equal to punctures; POL 2.16x OOL; interocular distance more on vertex than at clypeus (23:19); temple distinctly narrower (0.63x) than eye in profile (measured through its ocular sinus) (Fig. 4). Antenna farther from each other than from eyes (9:3); scape length 1.75x length of first flagellar segment (Fig. 5); first flagellar segment 1.71x as long as second flagellar segment, 2.4x as long as wide; flagellar segments widening towards apex as in figure 5; apical antennal segment slightly longer than wide.

**Mesosoma :** anterior face of pronotum smooth; posterior and lateral portion of pronotum, mesoscutum, scutellum, mesopleuron with moderately strong punctures; metanotum shiny with scattered punctures; dorsal side of propodeum closely and densely punctate except at anterior margin towards metanotum smooth, interspaces mostly less than punctures; metapleuron and lateral sides of propodeum smooth; pronotum with distinct pretegular carina; median length of mesoscutum as long as its maximum width; parategula (Fig. 6)



**Figs. 1-14.** *Oreumenoides edwardsii* (de Saussure). Female. Fig. 1. Head front view; Fig. 2. Left mandible front view; Fig. 3. Head dorsal view; Fig. 4. Head lateral view; Fig. 5. Antenna; Fig. 6. Tegula and parategula dorsal view; Fig. 7. Forewing; Fig. 8. Hindwing; Fig. 9. Fore leg lateral view; Fig. 10. Mid leg lateral view; Fig. 11. Hind leg lateral view; Fig. 12. Apex of petiole on ventral side; Fig. 13. Metasoma lateral view; Fig. 14. Second gastral tergum dorsal view.



**Figs. 15-21.** *Oreumenoides edwardsii* (de Saussure). Male. Fig. 15. Head front view; Fig. 16. Head dorsal view; Fig. 17. Antenna; Fig. 18. Aedeagus front view; Fig. 19. Aedeagus lateral view; Fig. 20. Volsella; Fig. 21. Paramere with volsella.

exceeding tegula posteriorly; axillary fossa not slit-like, much broader; metanotum at the same level of scutellum and propodeum, not raised; propodeal valvula rounded. Legs as in figures 9, 10 & 11; midtibia with one spur. Forewing and hindwing as in figures 7 & 8; forewing with prestigma 0.54x less than pterostigma; second submarginal cell acute basally.

**Metasoma :** Petiole length 1.27x than mesosoma in lateral view, 1.47x second gastral tergite (Fig. 13); apex of petiole on ventral side as in figure 12; petiole and gaster almost smooth, with minute punctures; second gastral tergum (Fig. 14) without lamella separated by preapical thickening, slightly curved inward medially at apex, almost straight, 1.3x as long as broad; posterior apices of third, fourth and fifth tergites and second, third, fourth and fifth sternites distinctly curved inward at middle.

**Male :** Body length 13.5-18 mm; forewing length 10.5 mm. Colour similar to that of female except in most

of the males labrum yellow and mandible yellowish brown; head width in dorsal view (Fig. 16) 4.7x distance between front ocellus and posterior occipital margin; median length of clypeus (Fig. 15) 1.67x its minimum width; POL 3.6x OOL; Antenna as in figure 17; last antennal segment minute, not coiled apically; aedeagus as in figures 18 & 19; volsellae as in figure 20; paramere with volsellae as in figure 21, parameral spine with moderately large hairs. Other characters almost as in female.

**Material examined :** India : Delhi : Delhi University Ridge, 1 F, 1.xii.1975, coll. V.K. Gupta, Regd. No. 12377/H3; Delhi University Campus, 1 F, 4.ix.1978, coll. A. Kaur, Regd. No. 12378/H3. Jharkhand : Ranchi dist., Namkum, 2 M, 15&23.v.1956, coll. C. Tirky, Regd. Nos. 12379/H3 & 12380/H3. Karnataka : Dharwad dist., Dharwad, 1 F, 17.i.1982, coll. S.K. Ghosh & party, Regd. No. 12381/H3. Madhya Pradesh : Shivpuri dist., Surwaya, 1 M, 16.v.1975, coll. S.K. Gupta & Party, Regd.

**PLATE-I**



*Oreumenoides edwardsii* (de Saussure). Female.

No. 12382/H3. Maharashtra : Satara dist.; Moleshwar, 1 F, 23.iv.1912, coll. F.H. Gravely, Regd. No. 12383/H3. Pondicherry : Karaikal dist., Karaikal, 1 F, x.1963, coll. P.S. Nathan, Regd. No. 12384/H3; Pondicherry dist., Nettareppakkam, 1 F, x.1963, Gupta collection, Regd. No. 12391/H3. Rajasthan : Sirohi dist., Mount Abu, 1 M, date of collection unknown, coll. Dudgeon, Regd. No. 12385/H3. Tamil Nadu : Coimbatore dist., Coimbatore, 3 M & 2 F, 20.iii.1957, iv.1963, ix.1963, xii.1963, x.1964, coll. P.S. Nathan, Regd. Nos. 12386/H3 to 12390/H3. Uttar Pradesh : Mirzapur dist., Pipri, near Rihand dam, 1 M, 2.v.1947, coll. H.A. Hafiz, Regd. No. 12392/H3; Azamgarh dist., Azamgarh, 1 F, 29.iv.1990, coll. T.R. Mitra & party, Regd. No. 12393/H3. West Bengal : East Midnapur dist., Daudpur, 1F, 12.viii.1985, coll. B.C. Das & Party, Regd. No. 12394/H3; South 24 Parganas dist., Sunderbans Biosphere Reserve, Sudhanyakhali, 1 F, 1.iv.2008, coll. P. Girish Kumar, Regd. No. 12395/H3 (NZSI).

*Distribution* : Oriental. India : Delhi (new record), Bihar, Jharkhand (new record), Karnataka (new record), Kerala, Madhya Pradesh (new record), Maharashtra, Pondicherry (new record), Rajasthan (new record), Sikkim, Tamil Nadu, Uttarakhand, Uttar Pradesh, West Bengal.

*Elsewhere* : Myanmar, Nepal, Pakistan, Thailand.

*Behaviour* : Nest construction (Dutt, 1912).

#### SUMMARY

The Oriental potter wasp species *Oreumenoides edwardsii* (de Saussure, 1852) is redescribed here. In this paper, this species is newly recorded from the Indian states Delhi, Jharkhand, Karnataka, Madhya Pradesh and Rajasthan and the Union territory Pondicherry.

#### ACKNOWLEDGEMENTS

The author is grateful to Dr. K. Venkataraman, Director, Zoological Survey of India, Dr. Kailash Chandra, Additional Director & Officer-in-Charge of Entomology Division (A), Zoological Survey of India, Kolkata and Dr. S.I. Kazmi, Officer-in-Charge of Hymenoptera Section, Zoological Survey of India, Kolkata for providing research facilities and encouragements to carry out this work. The author is also grateful to Dr. J. Gusenleitner, Austria for some valuable reprints of his papers. Sincere thanks are also due to Shri. Mridul Purakayastha, IT Assistant (Data Entry), ENVIS Centre on Faunal Diversity, Zoological Survey of India, Kolkata for editing photo.

#### REFERENCES

- Bingham, C.T. 1897. *The fauna of British India, including Ceylon and Burma. Hymenoptera. Vol. I. Wasps and Bees.* XXIX+579 pp. 4 pls. Taylor & Francis, London [Reprint 1975, Today and Tomorrow's, New Delhi].
- Dover, C. and Rao, H. S. 1922. A note on the Diplopterous Wasps in the collection of the Indian Museum. *J. Asia. Soc. Ben., N. S., XVIII* : 235-249.
- Dutt, G. R. 1912. Life histories of Indian insects (Hymenoptera). *Mem. Dept. Agr. India Ent. Ser., 4* : 183-267.
- Giordani Soika, A. 1961. Les lignees philetiques des *Eumenes* s. l. du globe (Hym. Vesp.). *Verh. XI Int. Kongr. Entomol. Wien., 1* : 240-245.
- Gupta, S. K. 1995. Hymenoptera. In Himalayan Ecosystem Series : Fauna of Western Himalaya, Part I, Uttar Pradesh. *Zool. Surv. India*, 81-89.
- Gusenleitner, J. 2006. Uber Aufsammlungen von Faltenwespen in Indien (Hymenoptera: Vespidae). *Linzer biol. Beitr., 38(1)* : 677-695.
- Saussure, H.F. de. 1852-1858. *Etudes sur la famille des vespides.* Vols. 1-3. V. Masson & Cherbuliez, Paris & Geneva.
- Smith, F. 1857. Catalogue of Hymenopterous insects in the collection of the British Museum, 5 : 1-147.
- Zipcodezoo.com Web page. Last revised on 04.04.2009. <http://zipcodezoo.com/Animals/O/Oreumenoides%5Fedwardsii/>. Accessed on 21.09.2010.